Forecasting Inbound Tourism Demand in Thailand with Grey model

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Abstract: Tourism has been a "smoke-free" and vital industry in many countries because it not only generates a plenty of quality employments but also offers a significant economic contribution to the country's GDP. In order to make the tourism industry stably grown, understanding of its key determinants becomes critical. Various studies have argued that certain determinants were either biasedly measured or incompletely collected due to their intrinsically subjectivity and/or availability; up to date, no standard models have been generally applied for accurate forecasting the tourism demand in the industry. In this study, we propose Grey forecasting approaches to tackle forecasting tourist-demand accurate problems under the sparsely available tourism-demand data. In the empirical study of annual inbound-tourism demand in Thailand, the forecasting performance of the traditional Grey model joined with a modified Fourier series has been verified to be satisfactory with a relatively low mean absolute percentage error.

Key–Words: $GM(1,1)$, Fourier modification, $FGM(1,1)$, Tourism demand, Grey forecasting model

1 Introduction

Nowadays, tourism has been a fast-growing industry in numerous countries. In the most recent research by MasterCard to compare the growth inbound tourist arrivals in 132 top cities and their cross-border spending with the world real GDP over a five-year period of 2009-2013, it showed that international visitor arrivals grew almost two times faster and their cross-border spending grew over 2.3 times faster as shown in Fig.1 [1]. So the international tourism and travel demand is growing strongly in spite of the permanent debility of constrained demand in the global economy.

Many evidences have also proven that the tourism not only generates a plenty of quality jobs with a great contribution to the GDP but also provides social diversity with enriched culture harmony. It is well known

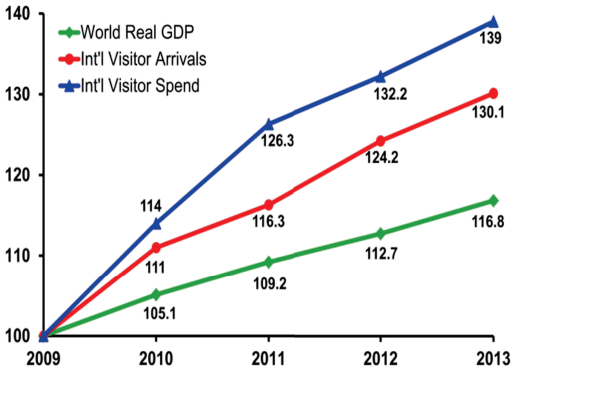

Figure 1: Growth rates of inbound tourist arrivals in 132 top cities and their cross-border spending with the world real GDP (Adapted from [1])